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Reading lessons were observed, taped, and analyzed to determine how teachers' questioning strategies contribute to students' ability to comprehend materials read. The kinds of thinking elicited by teachers' questions were investigated by means of a classification scheme developed which included recognition, recall, translation, conjecture, explanation, and evaluation. The characteristic patterns of teachers' questioning behaviors used to control students' responses were categorized into Immediate Right Answer, No Answer Permitted, No Answer Received, and Extending Answers. Question clusters used by teachers to relate the thinking of two or more questions were classified into Setting Purpose-Followup, Verification, Judgmental, and Justification. An analysis of 1857 questions of 12 randomly selected second-, fourth-, and sixth-grade teachers showed that the teachers tended to emphasize questions which required recall thinking. While they used several controlling actions to cue, clarify, extend, or shut off the students' thinking, they tended to use the Immediate Right Answer pattern. Teachers failed to put questions into clusters which would extend students' thinking and comprehension of the material read. (NS)

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Questioning Strategies of Elementary * Teachers in Relation to Comprehension

"But how do you teach children to comprehend what they read?" echoes the question.

"By asking them questions that cause them to understand and think about what they (the students) are reading," responds the reading teacher.

That teachers do ask questions, many questions, is a well documented fact (Chall[2], Austin & Morrison[1], Guszak[3]). How such questions contribute to the child's subsequent ability (or abilities) to comprehend reading passages remains the unknown because it is not easy to infer in cause and effect fashion that certain questions result in certain student outcomes. Lest the title of this paper should suggest the presence of such data, it is important that we immediately indicate that we possess no information of this kind.

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* A paper presented at the Thirteenth Annual Convention of the International Reading Association, Boston, April 26, 1968.

Rather, the study being reported was an attempt to fill some of our knowledge voids about what transpires when teachers question students about their reading. It seems imperative that a description of what happens must necessarily precede a prescription of what should happen with regard to teacher questioning strategies. Conceivably, the reader may join the researcher in the activity of posing interesting hypothesis and questions about the potential relationships between certain questioning strategies and subsequent student comprehension skills.

Questioning Strategies

The words "questioning strategies" suggest carefully planned questioning tactics such as those employed by certain basal series manuals wherein one may observe the plan to develop certain skills. As such, the word "planned" takes on great importance. Because it was not readily possible to determine to what extent, if any, the teachers planned their guided reading questioning it became useful to refer to the observed questioning behaviors as "patterns" rather than strategies.

Initially, many reading lessons were taped and analyzed in an effort to determine what was going on during the guided reading segment that might provide insights into teachers' questioning behaviors and subsequent student comprehension of story material. Emerging from this investigation were the following concerns:

- The kinds of thinking that teachers' questions are stimulating
- The ways in which teachers control student response to given questions
- The ways in which teachers tend to relate one question to another

These three large concerns (for other concerns, See Guszak[3,4]) were subsequently patterned into the three subtopics of: Kinds of Children's Thinking, Actions that Follow Teachers' Questions, and Relating Questions.

Kinds of Children's Thinking

Teachers obviously design different kinds of questions to tap different kinds of thinking skills about reading. Because some diversity exists in the nomenclature relative to such skills the following instrument was designed to describe the kinds of thinking stimulated by teachers' questions.

Recognition - These questions call upon the students to utilize their literal comprehension skills in the task of locating information from reading context. Frequently, such questions are employed in the guided reading portion of a story, i.e., "Find the sentence that tells how the dog escaped?"

Recall - Recall questions call for students to demonstrate comprehension by the recall of materials previously read. Such activity is primarily concerned with the retrieval of small pieces of factual material although the activity can vary greatly in difficulty. Recall, like

recognition, represents a literal comprehension task. An example of a recall question would be the following where the answer to the question is clearly printed in the text, i.e., "What color was Jack's car?"

Translation - Translation questions require the student to render an objective, part for part rendering of a communication. As such the behavior is characterized by literal understandings in that the translator does not have to discover intricate relationships, implications, or subtle meanings.

Conjecture - These questions call for a "cognitive leap" on the part of the student as to what will happen or what might happen. As such, the conjecture is an anticipatory thought and not a rationale, i.e., "Do you think he will win the race?" (Answer not known at time of question and response.)

Explanation - Explanation questions call upon the students to provide a rationale such as the "why" or "how" of a situation. The rationale must be inferred by the student from the context developed or go beyond it if the situation is data poor in terms of providing a rationale. Examples of explanatory responses are: substantiation of claims, i.e., "Explain why you think John was the best?"; explanations of value positions, i.e., "Why do you think this is the best story we have read?"; conclusions, i.e., "What can you conclude as the reason for Bill's failure?"; main ideas, i.e., "What is the main idea of this story?"; and others.

Evaluation - Evaluation questions deal with matters of value rather than matters of fact or inference and are thus characterized by their judgmental quality (worth, acceptability, probability, etc.).

When the instrument was applied to the questions of twelve randomly selected second, fourth, and sixth grade teachers it was found that these teachers called most frequently for recall types of thinking. Table 1 reveals the relative frequencies and percentages of thinking outcomes called for by the study teachers.

Table 1

FREQUENCIES AND PERCENTAGES OF SIX THINKING TYPES CALLED FOR BY TEACHER QUESTIONS

Recognition		Recall		Translation		Conjecture		Explanation		Evaluation	
f	%	f	%	f	%	f	%	f	%	f	%
252	13.5	1056	56.9	12	.6	120	6.5	133	7.2	284	15.3

More detailed analyses of the kinds of questions asked by teachers in the various grades as well as in the various reading groups (high, middle, and low) can be obtained elsewhere (Guszak[3]). What seems to be important here is the strong suggestion that the patterns of these teachers placed an overwhelming emphasis upon the literal aspects of reading comprehension. Whether such is good, bad, or indifferent, must be largely a values question or must call for more information about the relationship of the questions to the content.

Chall[2] in an analysis of the frequency of questions in basal series manuals strongly suggests that many questions may be quite unnecessary for comprehension stimulation. In light of this criticism, it seems imperative that analysis should be made to determine such things as the following:

- the concept loads of various stories and optimum questions for drawing upon these
- the appropriacy of recalling certain facts, happenings, etc.
- segments of content that are particularly valuable as inference stimulators

Teachers might be better prepared for the guided reading task if they would pose questions such as the following in advance of their meetings with groups:

1. What kinds of reading thinking skills can be developed in this content?
2. In terms of this group's skills (or better yet, individual's), how should I budget the question types?
3. In terms of this group's skills, how relevant do the basal reader questions seem?

Actions that Follow Teachers' Questions

In his "inquisitor" role the reading teacher has the opportunity to both formulate the question and to some extent control its destiny in the subsequent interaction.

One might assume that every question was designed to elicit a prompt and accurate response. Although the designers may desire such an end for their questions, it is apparent that many other things can happen. It would appear that the role played by the teacher immediately following the question launching may have a very vital effect upon the students' comprehension. As examples of such, the following are offered: The Immediate Right Answer, No Answer Permitted, No Answer Received, and Extending Answers.

The Immediate Right Answer

Teachers receive immediate right answers approximately fifty-seven percent of the time according to this study which indicates that teachers generally design questions that take hold immediately. As might be anticipated these questions are most frequently the simple recall variety such as the following:

Teacher: Who answered the door, Arthur?

Arthur: Dick.

No Answer Permitted

At times it is impossible to note whether the student attained the desired thinking level because of the intervention of the teacher, answering his own question such as the following:

Teacher: How do you know Jim was there (at door)?
(No response allowed)

Teacher: The doorbell, it rang.

While it is acceptable for individuals to answer their own questions on occasions, it seems imperative to determine how often the occasions occur and what the effect is upon those who are supposed to respond (at least they think they are).

Whereas the teacher in the first example didn't appear to go further with the question, note the actions of another teacher in the following exchange:

Teacher: What about the others? (No response allowed)

Teacher: What about the mother, dad, and four brothers?
(Still no response allowed)

Teacher: What were they thinking?

Student: They were thinking, "There goes another colt."

Obviously, this represents some difficulty in phrasing the desired question. Hopefully, the students will hang on and put it all together into a coherent question that they can answer.

No Answer or Wrong Answer

Everyone has experienced the situation wherein a question will be greeted by a noisy silence or by a totally incorrect response. Note how the teacher's actions might be characterized by one of the following:

- the teacher answers the question (as above)
- the teacher clarifies the question and trys again (keeping the same question open)
- the teacher offers additional cues in the hopes of getting the desired response

In the "clarifying" situation the teacher works as in the previous example on the idea that the question must not be understood. What is important is the fact that the teacher is not adding any information as the teacher in the preceeding example who kept adding more to the initial question. Rather, he is clarifying language, etc.

As we have seen, some questions are too loose and the teacher feels compelled to further cue what they're after. Note the efforts of the following teacher:

Teacher: How was the word jumping used in the story?
(Followed by silence and blank looks)

Teacher: What was jumping? (Continuing silence)

Teacher: What jumped? (Silence)

Teacher: Who jumped?

Student: Dick.

Sometimes the teacher's additional cueing will reduce the answer possibilities to the extent to where the child has it worked down to a good guess possibility. Illustrative of such would be the following extension of the previous questioning, assuming that the student had not answered.

Teacher: Now who jumped, Dick or Mary?

Student: Mary.

Teacher: Who?

Class: Dick (said with much gusto)

Extended Answers

"Extending" refers to the means wherein the teacher keeps the question open in order that he (a) may get a more complete and consequently accurate answer and (b) may provide several children with opportunities to project answers to a given question (normally a conjectural or explanatory question that may have unlimited answer possibilities).

Illustrative of the effort to get a more complete answer is the following sequence:

Teacher: What did she mean by, "If you will please?"

Student: If you would.

Teacher: If you would what?

Student: Answer the door.

Although very rare according to the research, some situations are provided by teachers' questions wherein various students can respond to the same question. Illustrative of one such sequence is the following:

Teacher: O.K., could you think of a good headline (for the story just read)?

Student: Kitty and the H'rses.

Student: A Girl with too Many Brothers.

Student: Kitty Gets the Colt.

Student: Kitty Saves the Colt.

In pointing out characteristics patterns of teacher questioning activities the intent has not been to demean or criticize such patterns. Rather, the concern is that teachers should be aware of such characteristics in order that they might develop and use questions in such ways as to develop optimum thinking on the part of the students. Thus, we would hope that teachers would tape record and analyze their questioning sessions to determine such things as the following:

1. Do my literal comprehension questions clearly spell out the nature of the response for the students?
2. Are too many of my literal comprehension questions answered instantly; thus indicating the possibility of an unchallenging question?
3. Do I really provide students with opportunities to do the thinking or do I step in too quickly with my desired answer?
4. When I seek to clarify a question, do I clarify it or answer it?
5. Do I provide enough time and enough proper cues to stimulate extended answers to questions that have many answers?

Relating Questions

Conceivably, there are endless ways in which one might view the relationships of questions. For instance, one might state that questions are related in that:

- they all pertain to a common event
- they sample sequential elements from an experience
- they are related by kind (as indicated by the kinds of thinking in the first part of this article)

Rather than viewing these relationships, the current study sought to determine how questions might cluster, one to another, to relate the thinking of two or more such questions. The results of observation revealed four rather clear question combinations, operating in teacher's questioning strategies. These combinations, known as question clusters, are described below:

(A) Setting Purpose - Followup - This type of cluster would result when a teacher would follow up a "setting purpose" question (S(O)) with a parallel question calling for a response. In other words, the teacher would ask the first question as a guide for the students and then would repeat the question in a manner that would call for response.

(B) Verification - Verification clusters involve questions wherein congruence can be verified by referring to the text. As such, it is the reverse of the previous cluster. In verification, episodes, the teacher follows up a student response

with a question that calls for the verification or finding of the referent for the response to the previous question.

(C) Justification - This type of cluster appears when a teacher calls upon a student to justify his own or somebody else's previous response by the use of explanation. This explanation most frequently follows a judgmental or conjectural response to a previous question.

(D) Judgmental - This cluster type refers to situations wherein a teacher will ask for an evaluation of the student response to the preceding question. Thus, judgmental clusters constitute a reversal of the order employed in the justification clusters.

Teacher uses of question clustering strategies are revealed in Table 2. In viewing the table it should be recalled that the total of 142 indicates that 284 of the 1857 questions studied were clustered.

Table 2

FREQUENCIES OF QUESTION CLUSTERS* USED BY SECOND, FOURTH, AND SIXTH TEACHERS

SP Follow-up	Verification	Justification	Judgmental	Total
67	33	36	6	142

* Combination of two related questions.

It is evident from the table that the SP-Followup strategy was the most prominent effort at clustering. This strategy derives directly from basal readers wherein teachers are directed to establish definite purposes in advance of students' reading.

Although the tabular date produced here doesn't reveal it, other data indicated that the teachers did not use this strategy as much as the basal suggested. Especially noticeable was the relatively infrequent use of such a strategy by the second grade teachers who normally employ the strategy on a page or every other page basis.

Verification clusters appeared rather infrequently as revealed by the data in Table 2. Seemingly, this strategy can be most important to developing pupils' abilities to skim for specific materials.

When recalling that Table 1 listed 284 evaluation questions asked by the study teachers it is interesting to note in Table 2 that 36 of these questions were followed up with an explanatory question. It would appear that students are asked to place value on many things but not asked to support such positions.

Judgmental clusters appeared virtually non-existant.

Presumably, teachers might profit from their own answers to such questions as the following:

1. Do I set purposes in advance of reading and then follow them up to see if the students have achieved them?
2. To what extent do I ask students to use flexible rate skills (skimming, scanning) in verifying information?
3. Do I invite frequent unsupported value judgments? Should I or shouldn't I?
4. How can I make better use of the opportunities for clustering questions?

Conclusions

Essentially, the reported research found that teachers tended to (a) emphasize recall thinking about reading, (b) utilize several controlling actions to cue, clarify, extend, or shut-off pupils' thinking (or answering), and (c) miss many opportunities for putting questions together into clusters that would extend thinking.

From the findings it seemed useful to speculate about certain factors that might result in reading questioning strategies that would be of high value. In posing questions the feeling was developed that better readers might emerge if teachers would do the following things:

1. Determine what kinds of thinking outcomes they want to develop.

2. Determine what relative importance to put on the various kinds of thinking outcomes with groups and individual readers, i.e., a heavy diet of recall questions for the word caller.

3. Determine what kinds of thinking can best be developed in the various kinds of story or reading material. Certain stories might be rich in conjectural possibilities while others might be bare.

4. Determine which basal reader guide questions have value for various groups and individuals.

5. Determine whether or not they ask clear, unambiguous questions.

6. Determine whether or not students are permitted to answer questions or whether the teacher moves in and does the answering.

7. Determine what actions are taken or not taken to clarify vague questions, provide appropriate cues, and to extend thinking on a given topic.

8. Determine which questions can properly stimulate thinking followups of previous questions and answers.

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